

Networked ATM for Efficient Routing, Phase II

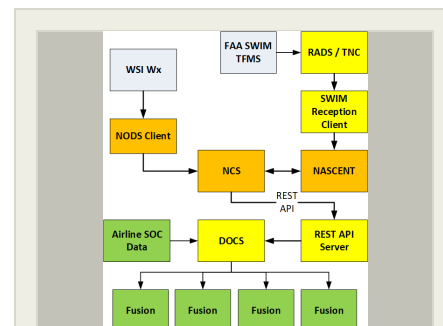
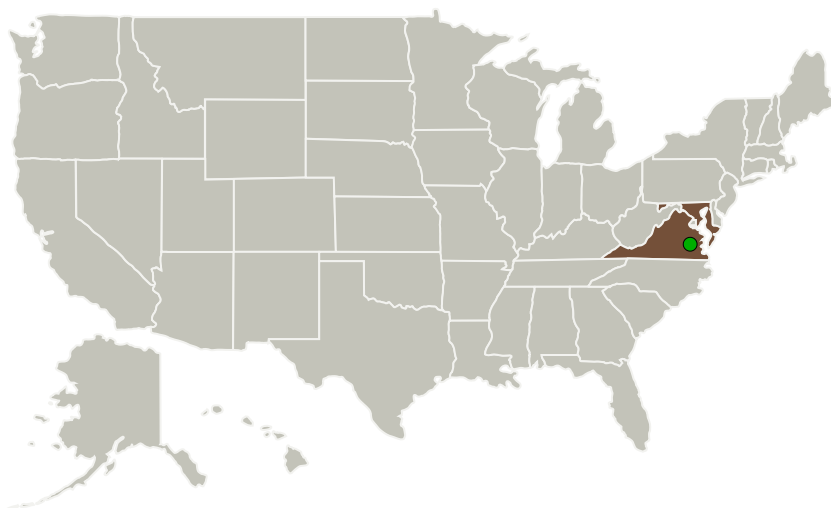
Completed Technology Project (2016 - 2018)



Project Introduction

We developed a EFB Data Communication Network (EDCN) concept that offers a more capable air-ground communications architecture. The solution takes full advantage of emerging communications technologies to integrate AOC/FOC and flight deck capabilities and leverage existing system integration between the AOC/FOC and TFMS to fully close the loop between controllers, traffic managers, pilots and dispatchers on tactical reroutes. Closing the loop between these four key stakeholder groups is an essential element for the extension of Trajectory Based Operations (TBO) and User Preferred Trajectories (UPT) into the enroute domain including NAS Oceanic airspace. This approach offers a more robust, extensible architecture that can be tailored to an individual airline's operational model while simultaneously offering an upgrade path for adding more capability over time. Our solution aims to combine the best features of recent NASA research products including DWR, DAR and TASAR, and adds more capability via enhanced data communications and connected cockpits. The solution is centered on both integration with AOC/FOC systems and the EFB and integration of AOC/FOC systems, to provide full access to superior information. This enables our architecture to use the best available data, allocate data processing and analytical functions to where they can be performed most efficiently, and allows the stakeholders to collaborate and make the best operational decision for the users as well as ATC. Robust Analytics will developed and flight test a prototype of the EDCN with matched AOC and EFB applications to support uploading of graphical weather and exchange proposed flight re-routes to avoid weather and other NAS constraints.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Robust Analytics	Lead Organization	Industry Women-Owned Small Business (WOSB)	Crofton, Maryland
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

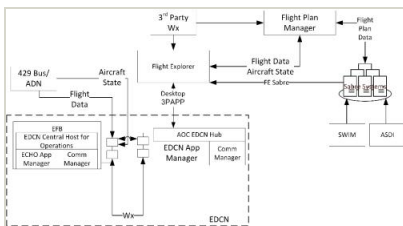
Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

**April 2016:** Project Start**September 2018:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/139553>)

Images

**Briefing Chart Image**

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(<https://techport.nasa.gov/image/130278>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Robust Analytics

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

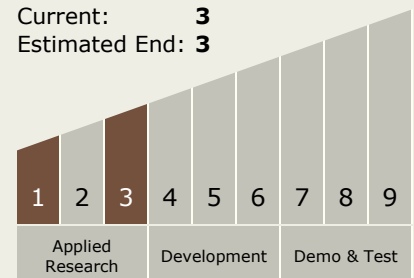
Carlos Torrez

Principal Investigator:

Peter F Kostiuk

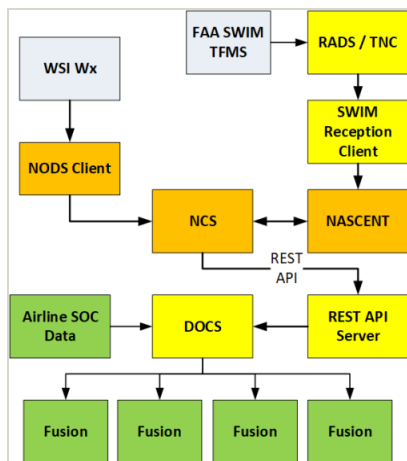
Technology Maturity (TRL)

Start: **1**
 Current: **3**
 Estimated End: **3**



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Final Summary Chart Image

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(<https://techport.nasa.gov/image/137136>)

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.3 Internetworking
 - └ TX05.3.4 Integrated Network Management

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System